



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

**OPERATIONAL MEMORANDUM  
NO. 8**

**SUBJECT:      APPLICABILITY OF THE OPERATING PERMIT AND EMISSION FEE  
PROGRAMS TO SOURCES OF PARTICULATE MATTER**

**EFFECTIVE DATE:    May 1, 1996**  
**REVISED:            February 14, 1997**

**EXECUTIVE SUMMARY**

A guidance memorandum issued by the US Environmental Protection Agency (EPA) on October 16, 1995 provided that particulate matter less than 10 microns (PM-10) is the only form of particulate matter to be used to determine which sources are subject to the requirements of Title V of the federal clean air act. The impact of this EPA memorandum on Michigan's renewable operating permit and fee programs are discussed in this Operational Memorandum and is summarized as follows:

- Renewable operating permit program. As defined by Rule 211 prior to December 12, 1996, a "major source" of total particulate matter (PM) was subject to the renewable operating permit program. Changes made to Rule 211 now provide that a major source of PM-10, not total PM, is subject to the program.
- Emissions Fees program. As defined in Section 5501 of Act 451, a "fee-subject facility", in part, includes a major source as defined in the federal regulations for state operating permit programs, i.e. a fee-subject facility is based on PM-10 emissions. However, once determined to be a fee-subject facility, the emissions charge component of the fee is based on total PM.

Finally, this Operational Memorandum provides a discussion of the determination of the potential to emit PM-10 emissions, including several example calculations.

**PREAMBLE**

Title V of the federal clean air act requires that the renewable operating permit program, and any associated emissions fee program, apply at a minimum to all "major sources". A source is major, as defined in Section 302 of the Act, if it has the potential to emit (PTE) 100 tons per year (TPY) or more of an air pollutant. EPA has interpreted "air pollutant" to be limited to all air pollutants subject to regulation under the Act. The federal part 70 regulations identify five categories of air pollutants which are regulated by the Act: (1.) nitrogen oxides and volatile organic compounds; (2.) any pollutant for which national ambient air quality standards (NAAQS) have been established, (3.) any pollutant that is subject to a new source performance standard (NSPS) under Section 111; (4.) certain ozone depleting substances; and (5.) any pollutant subject to national emission standard for hazardous air pollutants (NESHAP) under Section 112. Subsequently, two regulated forms of particulate matter exist: total particulate matter (PM), since many of the NSPS contain emission limitations for total PM; and particulate matter less than 10 microns (PM-10), since a NAAQS is established for PM-10. In a

regulated air pollutants, and therefore, both total PM and PM-10 were required to be considered by the states for purposes of compliance with Title V requirements.

On October 16, 1995, in a memorandum issued by Lydia N. Wegman, Office of Air Quality Planning and Standards, the EPA issued new guidance for determining which sources of particulate matter are subject to the minimum Title V requirements and fee calculations when used to demonstrate compliance with the federal presumptive minimum requirements. Based upon EPA's re-evaluation of this issue, the memo concludes that its definition of regulated air pollutant applies only to emissions of PM-10 and therefore, the federal minimum for applicability of Title V to sources should be based on the amount of PM-10, not total PM, that the source has the potential to emit. The memo further states that this revision of previous EPA guidance on the issue of particulate matter is a change only with regard to the Title V operating permit program, and it does not change any requirements for sources to comply with emission limitations or standards contained in the state implementation plan or any NSPS.

The purpose of this Operational Memorandum is to clarify the impact of the October 16, 1995, EPA memorandum on the applicability of sources of particulate matter on the Michigan renewable operating permit and emissions fees programs.

## POLICY

Existing state regulatory requirements pertaining to the applicability of sources of particulate matter to the renewable operating permit and fee programs and the impact of the October 16, 1995, EPA memorandum on these programs are discussed below.

### A. Renewable Operating Permit Program

Rule 211 (effective July 26, 1995) of the Michigan Air Pollution Control Rules, specifies which sources are subject to the renewable operating permit program. At the current time, applicability of the operating permit program is limited to major sources. Previously, R211(1)(a)(ii) defined a major source, in part, as a stationary source that directly emits, or has the potential to emit, 100 TPY or more of lead, sulfur dioxide, nitrogen oxides, carbon monoxide, "particulate matter", etc. As defined in Rule 116(c), "particulate matter" means any air contaminant which is measured by a reference test method specified in Rule 336.2000(5) of the Michigan rules which measure total PM, not PM-10.

As a result of the October 16, 1995, EPA memorandum, the AQD pursued the promulgation of a change to R211(1)(a)(ii), specifically to replace the word "particulate matter" with "PM-10". This change became effective December 12, 1996. Options for calculating the potential to emit for PM-10 are discussed in the section below titled DETERMINATION OF THE "POTENTIAL TO EMIT" PM-10 EMISSIONS.

### B. Emissions Fees Program

1. **Applicability.** A "fee-subject facility", as defined in Section 5501 of Act 451, includes, in part, the following: (1) a major source as defined in 40 C.F.R. 70.2; (2) a source subject to a NSPS; or (3) a source subject to a NESHAP.

Regarding the C.F.R. definition of major source, up until October 16, 1995, EPA guidance had stated that BOTH forms of particulates matter (total PM and PM-10) were considered regulated air pollutants. Since the emission of PM-10 from a process is less than or equal to the emission of total PM, the determination of "major source" under the federal definition was in essence based on total PM. However, since current EPA guidance as provided in the October 16, 1995, memorandum is to consider only PM-10 emissions in determining applicability to the Title V program, the determination of a "fee-subject facility" is now based on PM-10 emissions.

A facility is also "fee-subject" if it is subject to a NSPS or NESHAP requirement. Existing NSPS or requirements, some of which include limits for total PM, are not affected by the October 16, 1995, EPA memo. Therefore, facilities subject to NSPS requirements continue to be subject of fees, at least as "Category II" facilities, and are not affected by the definition of particulate.

2. Calculation of fees. Once a facility has been determined to be "fee-subject", then the annual fee is the sum of the facility charge and the emissions charge. The facility charge is based on the fee Category of the facility. The emissions charge is based on the actual emissions of "fee-subject air pollutants" at the facility. Act 451 defines "fee-subject air pollutant" as particulates, sulfur dioxide, ..., etc. Since the definition of "particulate matter" contained in Rule 116(c) applies to total PM, not PM-10, the emission charge calculation continues to be based on the amount of total PM emitted at the facility.

#### DETERMINATION OF THE "POTENTIAL TO EMIT" PM-10 EMISSIONS

The "potential to emit", according to Rule 116(m), is in part defined as "... the maximum capacity of a stationary source to emit an air contaminant under its physical and operational design. Any physical or operational limit on the capacity of the stationary source to emit an air contaminant, including air pollution control equipment and restrictions on the hours of operation or the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if such limit, or the effect it would have on emissions, is legally enforceable." The total PTE for the stationary source is the aggregation of PTE of all process and process equipment at the source. A source should calculate PTE of PM-10 emissions using the same methodology as for any other regulated air pollutant.

In the case where the process or process equipment currently has no legally enforceable emission limit, or other legally enforceable restrictions on its operation, the PTE is the maximum amount of PM-10 that the process could possibly emit and is based on the following: (1.) The process is operated at 100% of design capacity; (2.) the materials that emit the most PM-10 are processed 100% of the time; (3.) the process is operating 8760 hours per year; and (4.) no credit is taken for control equipment. In conducting the PTE calculation, site-specific emissions information such as representative stack test data or mass balance information should be used whenever possible. PM-10 emission factors contained in the EPA publication AP-42 may be used when site-specific emissions data is not available, provided that the factor is representative of PM-10 emissions from the process. If site-specific PM-10 emissions data or AP-42 emissions factors for PM-10 emissions are not available for a given process, site-specific total PM emission data or AP-42 emissions factors for total PM must be used, since total PM represents "worst case" particulate emissions.

Many processes that emit particulate matter are subject to an emission limitation for total PM contained in a permit, a state rule, or federal regulation, such as NSPS. In this case, regardless of the presence

of the total PM limitation, the source may elect to calculate PTE based on site-specific PM-10 emissions information or AP-42 PM-10 emissions factors. Calculation of the PTE for PM-10 in this manner should always result in a PTE value lower than if the PTE is determined based on the total PM limitation. In the event that AP-42 emission factors are not reliable or available for a process, and site-specific information is not obtained, the source may elect to calculate the PTE based on the total PM limitation as representing "worst-case" emissions for PM-10. Several examples of the PM-10 PTE where total PM limitations are applicable to a process are included as Attachment A.

For a process which has an air use permit, there may be operational limits (e.g. hours of operation) or production limits (e.g. widgets per hour) included in the conditions of the permit. In this case, the PTE may be calculated using PM-10 or TSP emissions data as described above except that the factor reflecting the limitation is used.

If the source is major for PM-10 emissions, one of the mechanisms the source may use for limiting the applicability to the renewable operating permit program is the use of a permit to install as a means to limit a source's PTE to levels below applicable thresholds for a major source. This is referred to by US EPA as a "synthetic minor" permit, and the procedure for obtaining such a permit is described in Operational Memorandum No. 3. In utilizing this option, the company may propose an emission limitation based either on total PM or PM-10 emissions. In either case, the appropriate federal or state reference test method must accompany the proposed emission limit. For a synthetic minor permit, the PTE for PM-10 emissions must be calculated using the total PM or PM-10 emission limitation that is included in the permit. In addition, Rule 208a allows facilities that would be considered major sources based on their potential to emit of PM-10 but with actual emissions less than 50 tons per year to use a registration process in order to limit their potential and not be subject to the renewable operating permit program. See Operational Memorandum No. 4 for details.

This memorandum is intended to provide guidance to AQD staff to foster consistent application of Part 55 of Act 451 of the Public Acts of 1994, the Natural Resources and Environmental Protection Act and the administrative rules promulgated thereunder. This document is not intended to convey any rights to any parties nor create any duties or responsibilities under law. This document and matters addressed herein are subject to revision.

Questions regarding this memorandum should be directed to Mike Koryto at 517-625-4662.

Attachment  
RSJ:MK:amh

**ATTACHMENT A****Example Potential to Emit (PTE) Calculations for  
Sources of Particulate Matter with Existing PM Limitations****Example 1**

- Aluminum (Al) melt crucible furnace, natural gas burners (SCC: 3-04-001-02).
- Furnace capacity: 10,500 pounds.
- Maximum allowed material usage: 475 tons Al per year.
- Stack data: 2750 CFM; 1000 degrees F.
- No control device.
- Total PM emission limitation in the air use permit: .1 pounds/1000 pounds exhaust gas (Rule 331).
- Total PM Emission Factor = 1.9 pounds/ton Al produced
- PM-10 Emission Factor = 1.7 pounds/ton Al produced.

**CALCULATIONS:****Total PM**

- Expected total PM emissions at maximum allowed operating conditions:  
 $(1.9 \text{ pounds/ton Al}) \times (475 \text{ tons Al/yr.}) \times (\text{ton}/2000 \text{ pounds}) = .5 \text{ tons/yr. (TPY)}$
- Allowable total PM based on PM emission limitation in permit:  
 $(2750 \text{ cubic ft./min.}) \times (60 \text{ min./hr.}) \times (.075 \text{ pounds/cubic ft.})$   
 $\times ((460 + 70)/(460 + 1000)) \times (.1 \text{ pounds/1000 pounds})$   
 $\times (8760 \text{ hrs./yr.}) \times (\text{ton}/2000 \text{ pounds}) = 2 \text{ TPY.}$
- The PTE for total PM is 2 TPY, the amount allowed by the emission limitation in the permit.

**PM-10**

- Expected PM-10 emissions at maximum allowed operating conditions:  
 $(1.7 \text{ pounds/ton Al}) \times (475 \text{ tons Al/yr.}) \times (\text{ton}/2000 \text{ pounds}) = .4 \text{ TPY}$   
This represents the PTE for PM-10 for this process.

**Example 2**

- Electric utility pulverized coal fired boiler; dry bottom, tangential fired unit (SCC: 1-02-002-12)
- 485 million BTU/hr. capacity.
- BTU content of coal: 11,000 BTU/pound (22 million BTU/ton).
- Total PM emission limitation in air use permit, based on NSPS: .03#/million BTU heat input.
- Total PM emission factor = 10.0 pounds/ton of coal burned
- PM-10 emission factor = 2.3 pounds/ton of coal burned.
- Controlled by fabric filter (baghouse) collector.
- Control efficiencies:  
Total PM - 96.4%  
PM-10 - 90%

**CALCULATIONS:****Total PM**

- Expected total PM emissions at maximum operating conditions:  
*Uncontrolled* -  $(10.0 \text{ pounds/ton of coal}) \times (485 \times 10^6 \text{ BTU/hr.})$   
 $\times (\text{ton of coal}/22 \times 10^6 \text{ BTU}) \times (8760 \text{ hrs./yr.}) \times (\text{ton}/2000 \text{ pounds}) = 965 \text{ TPY}$   
*Controlled* -  $965 \text{ TPY} \times (1 - .964) = 34.7 \text{ TPY}$
- Allowable total PM based on PM emission limitation in permit:  
 $(485 \times 10^6 \text{ BTU/hr.}) \times (.03 \text{ pounds}/10^6 \text{ BTU}) \times (8760 \text{ hrs./yr.}) \times (\text{ton}/2000 \text{ pounds}) = 64 \text{ TPY}$
- The PTE for total PM is 64 TPY, the amount allowed by the emission limitation in the permit.

**PM-10**

- Expected PM-10 emissions at maximum operating conditions:  
*Uncontrolled* -  $(2.3 \text{ pounds/ton of coal}) \times (485 \times 10^6 \text{ BTU/hr.}) \times (\text{ton of coal}/22 \times 10^6 \text{ BTU})$   
 $(8760 \text{ hrs./yr.}) \times (\text{ton}/2000 \text{ pounds}) = 222 \text{ TPY}$   
*Controlled* -  $222 \text{ TPY} \times (1 - .9) = 22.2 \text{ TPY}$   
This represents the PTE for PM-10 for this process.

**Example 3**

- Primary crusher - limestone quarry (SCC: 3-05020-01).
- Crusher capacity: 250 tons/hour.
- Subject to NSPS 000.
- Total PM emission limit:
  - if stack emissions: .05 gr./dscm or 7% opacity
  - if no stack emissions (fugitive): 15% opacity
- No exhaust point on the crusher (fugitive emissions only)
- Total PM emission factor = .50 lb./ton rock processed.
- PM-10 emission factor = .28 lb./ton rock processed.
- Controlled by water spray bar.
- Control efficiencies:
  - Total PM - 80%
  - PM-10 - 75%

**CALCULATIONS:****Total PM**

- Expected total PM emissions at maximum operating conditions:  
*Uncontrolled* - (.5 lb./ton) (250 tons/hr.) (8760 hrs./yr.) (ton/2000 lbs.) = 550 TPY  
*Controlled* - (550 TPY) x (1 - .8) = 110 TPY
- Allowable total PM based on PM emission limitation in the permit & NSPS:  
Since the crusher does not have an exhaust point, the .05 gr./dscm PM limit does not apply.
- The PTE for total PM is 110 TPY.

**PM-10**

- Expected PM-10 emissions at maximum operating conditions:  
*Uncontrolled* - (.28 lb./ton) (250 tons/hr.) (8760 hrs./yr.) (ton/2000 lbs.) = 307 TPY  
*Controlled* - (307 TPY) x (1 - .75) = 75 TPY  
This represents the PTE for PM-10 for this process.